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Aberdeen City Council

Energy Efficiency and Renewables

Key Drivers – Scottish Govt

- The **Climate Change (Scotland) Act 2009** reduction of emissions of 42% by 2020 and 80% by 2050, compared to the 1990/1991 baseline.
- **A largely de-carbonised heat sector by 2050 with significant progress by 2030** through a combination of reduced demand and energy efficiency, together with a massive increase in the use of renewable or low carbon heating;
- Scottish Govt increased **renewable electricity** target to **100% by 2020** with interim target of 31% for 2011.

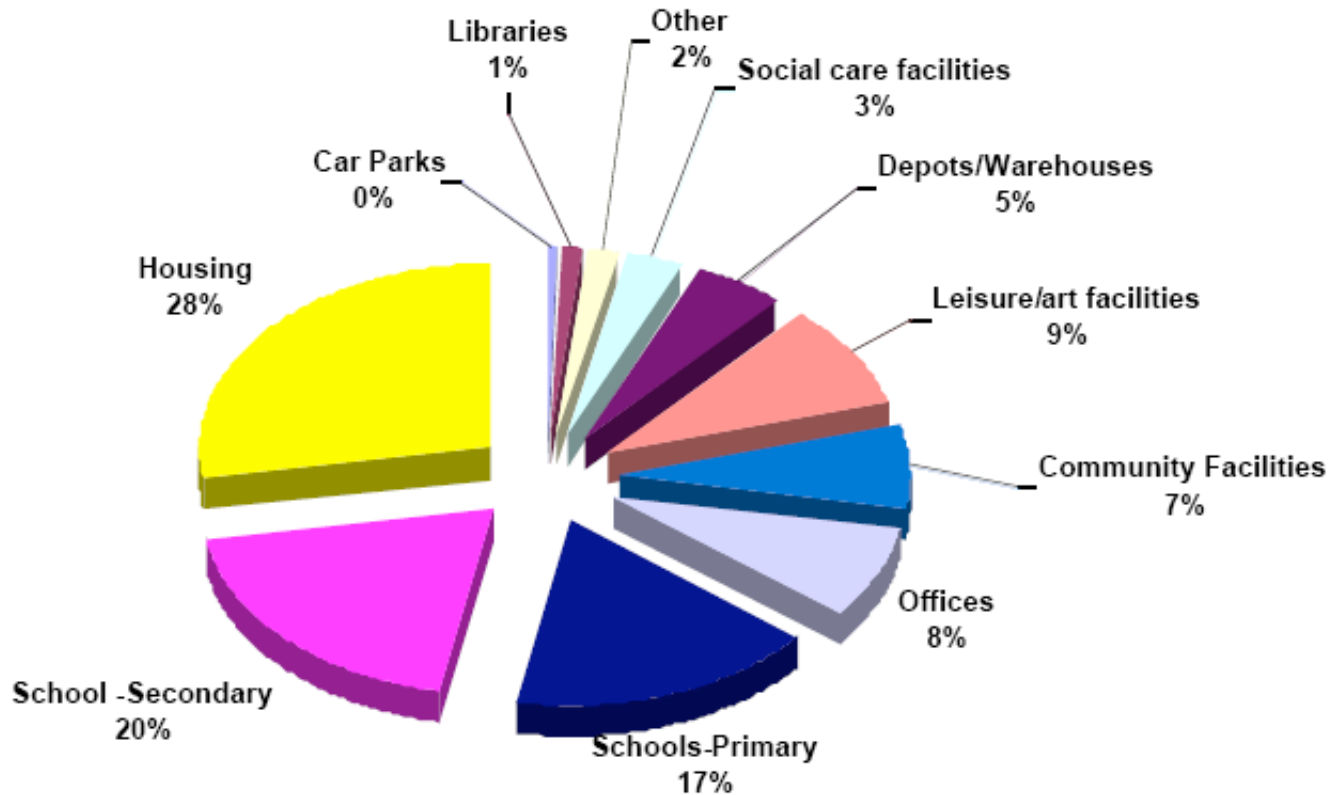
Key drivers – Other legislation

- Carbon Reduction Commitment (CRC)
- **EPC** energy rating requires recommendations to improve energy performance
- BREEAM standards
- Scottish Housing Quality Standards and EESH (2016)
- Scottish Building Regulations Section 6 – all new buildings required to show 30% reduction in CO2 emissions from 2007 standards, improvement to U-values, air tightness, boiler seasonal/thermal efficiencies, lighting efficacy, energy eff ratios for cooling systems.

Key Drivers - ACC

- ACC Carbon Management Plan target to reduce Aberdeen City Council's CO2 emissions 23% by 2015 and 42% by 2020 using 2008/09 baseline.
- 2% year on year reduction in energy consumption for public buildings
- **Aberdeen – the Smarter City Vision**
Encourages more efficient use of greener resource which generates a competitive economy;

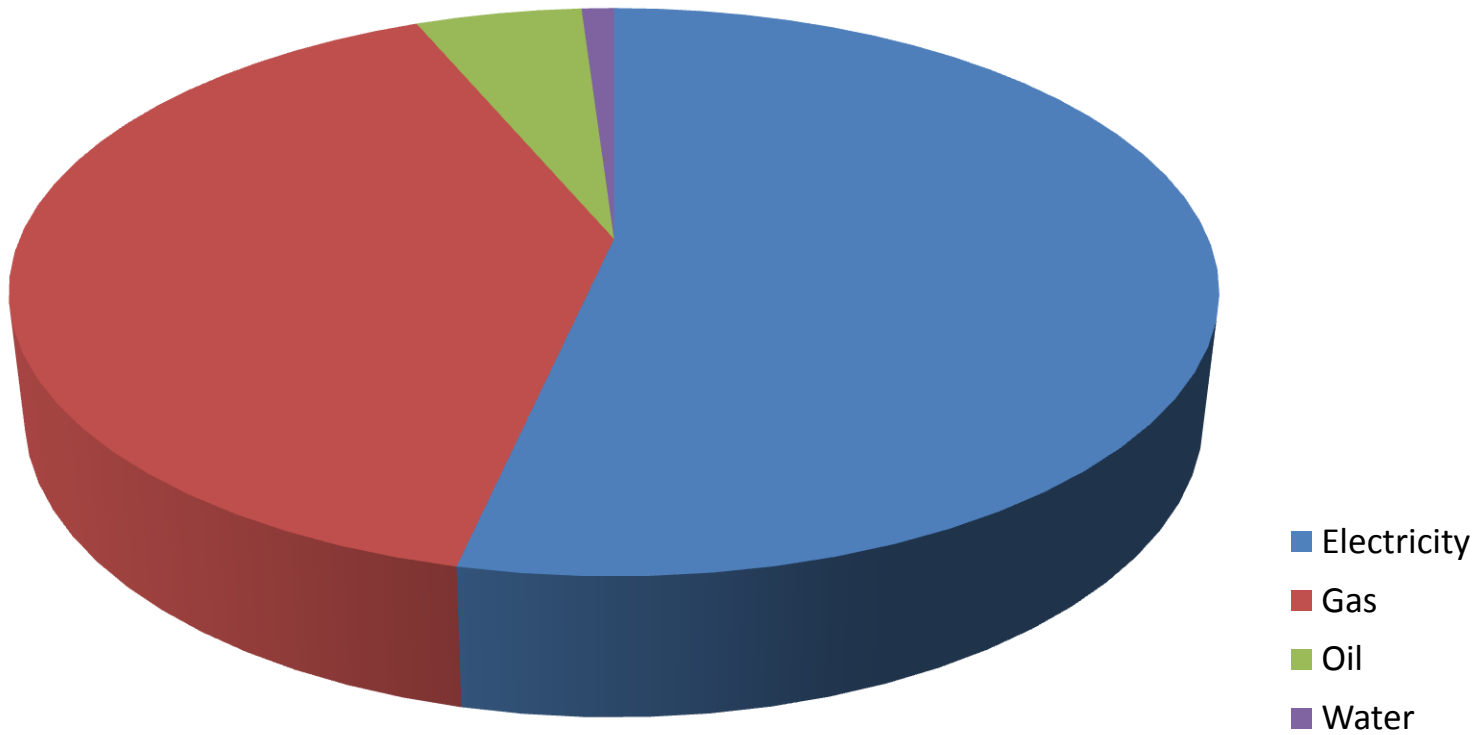
ACC Carbon emissions by service





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ACC Energy Carbon emissions tCO₂ in 2012/13





TOTAL ENERGY kWh



Actual Target



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Energy Efficiency and On-site Renewables Projects Current and Future

ACC other renewable projects

- **Solar PV**
- **Biomass**
- **Ground source heat pumps**
- **Air source heat pumps**
- **CHP in school**
- **Small scale wind turbine**
- **Solar water heating**
- **Rainwater harvesting**



ACC key projects – Solar PV

- Installation of solar PV on nearly 80 sites – variety of buildings e.g. schools, offices, sports centres, sheltered housing.
- Largest array size 233kWp producing 170,000kWh electricity annually.
- Total electricity generating capacity 3.1MW
- Value of project >£5m
- Potential cost saving in electricity for ACC approx £60k p/a
- Sites benefit from green electricity at lower cost
- No maintenance or running cost
- Unique in Scotland

Example of PV arrays installation



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Biomass

Pros

- Using local biomass – woodchip and pellets from managed estates, cuttings from arboriculture, sawmill cuttings.
- Sustainable and not fossil fuel
- Less polluting than fossil fuels

Cons

- Sustainable for future?
- Demand > supply?
- Cost driven by market?

Current biomass installation is projected to reduce ACC carbon emission and cost saving from oil boiler

Biomass boiler technology



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Heat pumps

Pros

- Free heating/cooling from ground or air
- Simple technology
- Can be cost effective
- Low maintenance

Cons

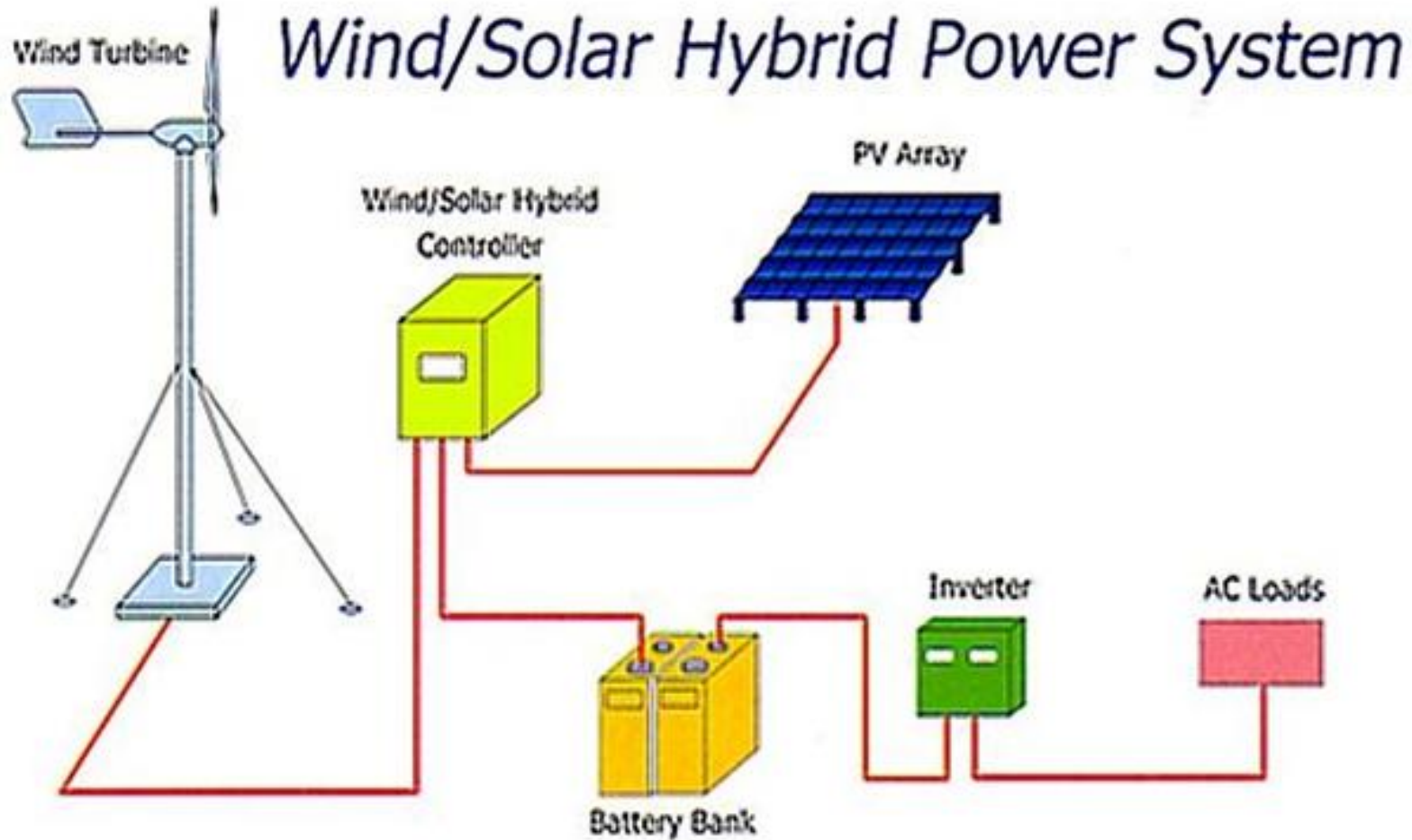
- Expensive to install – boreholes
- Pumps still use electricity

Currently ACC has a few GSHP and one ASHP installed. ASHP project was successful in reducing energy and carbon by 50% (conversion from oil to ASHP)

Future systems?



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ACC – developments

- **Expand district heating network**
- **Decarbonise - Displace fossil fuel in heat generation using biogas, biomass, green hydrogen**
- **Improve building energy efficiency through design – energy, carbon, sustainability**
- **Link with other projects that are ongoing in the City – “joined up approach”**
- **Work in partnership with other public sector, external organisation**
- **Lead on emerging technologies – hydrogen fuel cell**
- **Energy from Waste – over the next 10 years**
- **Changing the way we use energy, our assets, delivery of service**



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Mai Muhammad

Energy Manager

Aberdeen City Council

mmuhammad@aberdeencity.gov.uk